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JAPANESE COLLEMBOLA.

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The few forms with which this paper deals will interest entomologists because nothing has hitherto been recorded concerning the Collembola of Japan. My friend, Dr. Seitaro Goto, was so good as to collect three species for me in Tokyo, which were kindly brought by Professor Mitsukuri, of the Imperial University. Thanks to the care with which the specimens had been killed and preserved, they arrived in excellent condition and, therefore, were not difficult to study. All these species prove to be new and are here named Achorutes communis, Xenylla longicauda and Seira japonica. Many of the types have been deposited in the Museum of Comparative Zoölogy at Cambridge, Mass.

I may take this opportunity to state that *Lepisma* occurs in Tokyo, according to Dr. Goto, and Professor Mitsukuri informs me that *Campodea* is found in Japan, as might be expected.

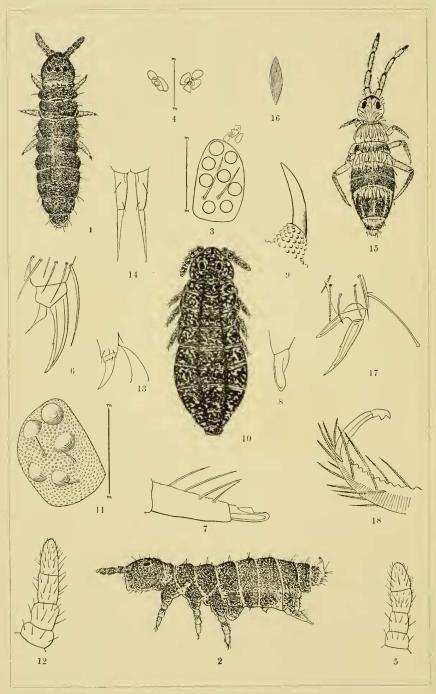
Family PODURIDÆ Tömösvary.

Genus ACHORUTES TEMPLETON.

Achorutes communis, n. sp.

General color (Figs. 1 and 2) blackish gray, flecked with pale gray; the sternum, legs, furcula and intersegmental regions are pale gray, which is the real ground color. A dorsal, interocular, black patch is present. Eyes (Fig. 3) eight on either side, situated upon a black patch. Postantennal organs consisting of four elevations (Figs. 3 and 4), which are very variable in form and arrangement; Fig. 4, showing these organs from the right and left sides of the same head, exemplifies this variability. Antennæ subequal to the head, in length, and stout (Fig. 5); segments, in relative lengths, as 6: 7: 8: 10; basal segment compressed longitudinally; second, barrel-shaped; third, swollen apically; terminal segment conical and blunt. Body cylindrical, its segments mostly subequal; between the more anterior segments are transverse, dorsal, lozenge-shaped areas of pale gray (Fig. 1) each containing a narrow, blackish band; blackish dorsal and subdorsal stripes are more or less evident. The head and body are tuberculate, as usual, and are clothed with numerous short, curved bristles, which are sparsely interspersed with longer, stiff setæ. Legs stout, feet biunguiculate (Fig. 6). Superior claw stout, curved, unidentate; inferior claw half as long, with broad base and acuminate apex; a single tenent hair is present. Ventral tube stout, emitting two rounded tubercles. Furcula (Fig. 7) short and stout;





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manubrium (basal segment, Fig. 2) swollen; dentes (intermediate segments, Fig. 7) stout, slightly tapering, with stiff bristles; mucrones (apical segments) half as long as the dentes, concave, in form as represented in Figs. 7 and 8. Anal spines (Figs. 1, 2 and 9) two, subequalling the superior claws in length, curving forward and seated upon tuberculate papillae, the bases of which are contiguous.

Length 1.3 mm. I have examined over three hundred examples of this species, which Dr. Goto found on the surfaces of pools and wells during wet seasons.

A. communis is most nearly allied to A. armatus Nie. but I have compared the Japanese form with European examples of armatus, which were sent to me by Dr. C. Schäffer, of Hamburg, and find the two forms to be unquestionably distinct. They are separated by considerable differences in form of body, coloration, shape of inferior claws, mucrones and post-antennal organs and arrangement of the eyes.

 $A.\ communis$ also bears much resemblance to $A.\ longispinus\ Tull.^2$

Genus XENYLLA TULLBERG.

Xenylla longicauda, n. sp.

General color (Fig. 10) dark indigo blue, mottled with yellowish-white, which is the ground color; dorsum with two interrupted black stripes, subdorsal in position; also a black transverse streak in each intersegmental region; sternum yellowish-white, mottled with dark blue. Eyes (Fig. 11) five on either side, hemispherical, seated upon convex, minutely tuberculated, black patches, which are narrowly encircled with white.

⁴ Nicolet '41, p. 57, pl. 5, fig. 6; Tullberg '72, p. 51, taf. N, figs. 23-25; Lubbock '73, p. 180-181, pl. 40; Tullberg '76, p. 38, taf. 10, fig. 35; Schäffer '96, p. 173, taf. 11, figs. 31, 46 and taf. 111, fig. 60.

² Tuilberg '76, p. 37, taf. X, figs. 31-34; Schäffer '96, p. 191, taf. II, figs. 44, 45.

Postantennal organ absent. Antennæ subequal to the head, in length, with segments in relative lengths as 7: 8:9:9; basal segment stout, globose or compressed (Fig. 12); second, swollen apically; third, more slender, cylindrical; terminal segment conical. Body cylindrical-ovate, the abdomen being much dilated laterally; the segments, measured along the median dorsal line, are related in length as 4:6:6:7:7:6:9:6:3; the head and body are clothed with minute bristles, interspersed with a few longer setæ. Legs stout; tibiæ (Fig. 13) with two, minutely-knobbed, tenent hairs; feet uniunguiculate; claw stout, uniformly tapering, slightly curved and untoothed; inferior claw represented by the merest rudiment. Furcula (Fig. 14) extending considerably beyond the abdomen; manubrium triangular; dentes tapering, each with two setæ; mucrones onethird longer than the dentes, clearly articulated with the latter, very slender, gradually tapering to a minute point. Anal spines and papillæ are quite absent.

Length 1.4 mm. Described from forty-two types, which Dr. Goto found "between the scales of old pinecones, June 24, 1897."

X. longicauda is decidedly unlike any hitherto described species of Xenylla, but is nearest related to X. humicola O. Fabr. (1780, p. 213-214, Podura humicola). X. longicauda, as contrasted with this near ally, has a furcula which is relatively much longer and much more slender, also mucrones which considerably exceed the dentes in length; moreover there are no traces of anal spines or papillæ, which, although reduced in certain species, nevertheless occur in all other known species of Xenylla.¹

¹ For descriptions and figures of X. humicola, consult O. Fabricius 1780, p. 213-214; Tullberg '76, p. 39, taf. X, figs. 44-46; Reuter '95, p. 32, tab. 2, fig. 10; and Schäffer '96, p. 169-170, taf. 2, fig. 43.

X. longicauda also approaches X. affinis Schäffer ('97, p. 10, taf. 1, fig. 17), which differs from both longicauda and humicola principally by possessing much stouter and unidentate claws, as well as three tenent hairs.

Family ENTOMOBRYIDÆ TÖMÖSVARY.

Genus SEIRA LUBBOCK.

Seira japonica, n. sp.

Color, ochre yellow, with broad, blackish-purple bands, commonly as represented in Fig. 15; occasionally, every segment of the body possesses a blackish band. Head yellow, bordered anteriorly, and sometimes posteriorly, with black. Eyes normal. Antennæ (Fig. 15) almost half as long as the body, with segments in relative lengths as 7:12:13:14, densely hairy, and yellow with purple apices. Pronotum yellow, frequently marked with black; mesonotum not projecting, yellow, often narrowly bordered with black; metanotum yellow, with an ill-defined band; first abdominal segment usually yellow, but sometimes banded behind, like the remaining segments; each band is generally indistinctly limited anteriorly; second and third abdominal segments mostly black, or else yellow anteriorly; fourth, yellow in front only and with three yellow stripes behind, one being dorsal and two subdorsal in position; fifth, yellow anteriorly: sixth, vellow, sometimes blackish behind. entire dorsum is abundantly clothed with bowed, clavate hairs, interspersed with short, simple bristles. Scales are present, in addition, which are symmetrical (Fig. 16) elliptical, with a minute rounded pedicel, acute apex and fine longitudinal ribs. Under a one-eighteenth homogeneous immersion objective, the markings are seen to be linear, almost as long as the scale and broadening slightly at their distal portions. Although my specimens were in